

ABSTRACT

Interactive, preferably computer based iterative
processes for generating synthetic compounds with desired
5 physical, chemical and/or bioactive properties, i.e.,
active compounds, are provided. During iterations of the
processes, a target nucleic acid sequence is provided or
selected, and a library of candidate nucleobase sequences
is generated *in silico* according to defined criteria. A
10 "virtual" oligonucleotide chemistry is chosen and a library
of virtual oligonucleotide compounds having the selected
nucleobase sequences is generated. These virtual compounds
are reviewed and compounds predicted to have particular
properties are selected. The selected compounds are
15 robotically synthesized and are preferably robotically
assayed for a desired physical, chemical or biological
activity. Active compounds are thus generated and, at the
same time, preferred sequences and regions of the target
nucleic acid that are amenable to oligonucleotide or
20 sequence-based modulation are identified.

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